PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project			
HOOD RIVER / FIFTEENMILE CREEK UMBRELLA			
BPA project number	**20513**		
Contract renewal date (mm/yyyy)			
Multiple actions? (indicate Yes or No)			
Business name of agency, institution or organization requesting funding			
OREGON DEPARTMENT OF FISH AND WILDLIFE / CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON			
Business acronym (if appropriate)	ODFW and CTWSRO		
Proposal contact person or principal investigator:			
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NPPC Program Measure Number(s) which this project addresses			
FWS/NMFS Biological Opinion Number(s) which this project addresses			
Other planning document references			
Short description			
Re-establish Hood River spring chinook salmon population and restore depressed Fifteenmile Creek winter steelhead and Hood River winter and summer steelhead populations by supplementation, using native fish stocks, and/or habitat restoration. Wildlife will be enhanced and wildlife habitat will be enhanced or acquired.			
Target species			
Winter Steelhead, Summer Steelhead, Spring Chinook Salmon, and a variety of Wildlife			

Section 2. Sorting and evaluation

Subbasin
Hood River / Fifteenmile Creek Umbrella Proposal

Evaluation Process Sort

CBFWA caucus	CBFWA eval. process	ISRP project type
X one or more caucus	If your project fits either of these	X one or more categories

		processes, X one or both			
X	Anadromous fish	X	Multi-year (milestone-based evaluation)	X	Watershed councils/model watersheds
X	Resident Fish		Watershed project eval.	X	Information dissemination
X	Wildlife			X	Operation & maintenance
				X	New construction
				X	Research & monitoring
				X	Implementation & mgmt
				X	Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description	
20513	**Hood River / Fifteenmile Creek Umbrella Proposal**	
9301900	Hood River Production Program	ODFW / CTWS O&M
8902900	Hood River Production Program	Round Butte Hatchery production and Pelton Ladder rearing
8805304	Hood River Production Program	ODFW M&E
8805303	Hood River Production Program	CTWS M&E
9802100	Hood River Habitat	CTWS
9304000	Fifteenmile Creek Habitat Restoration Project	ODFW
9304001	Fifteenmile Creek Wild Steelhead Smolt Production	ODFW
9500700	Hood River Production Program	PGE, Pelton Ladder O&M
9145	Cutthroat Trout	ODFW
9705909	Hood River Wildlife Habitat	ODFW

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9404200	Trout Creek Habitat Restoration Project	Shares equipment and personnel with Fifteenmile Creek Habitat Restoration Project (9304000)

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1986	The physical stream survey of the Fifteenmile Creek subbasin was completed.	Yes. This survey accurately recorded important habitat attributes and deficiencies within subbasin streams.
1987	The Fifteenmile Creek Basin Fish Habitat Improvement Implementation Plan (Smith et al. 1987) was completed.	Yes. This plan prioritized the implementation of habitat restoration measures and was developed in cooperation with the USFS and CTWSRO.
1994	Winter steelhead broodstock first collected at Powerdale Dam (Hood River).	Yes. Winter steelhead broodstock have been collected each year at Powerdale Dam since 1994.

1994	Spring chinook salmon collected at Pelton Trap for Hood River smolt production	Yes. 100,000 - 129,000 smolts have been released into Hood River since 1996.
1995	Construction of rearing cells in the Pelton Fish Ladder completed.	Yes. Spring chinook from 1994-96 broods have been reared in the ladder cells.
1995	Physical stream inventories of anadromous salmonid bearing streams located on all private and selected USFS lands in Hood subbasin completed.	Yes. This survey accurately recorded important habitat attributes and deficiencies within subbasin streams.
1996	Completed development of winter steelhead acclimation facility on the East Fork Hood River.	Yes. All hatchery reared winter steelhead smolts have been acclimated from 1996 - 1998.
1996	Completed development of the West Fork Hood River smolt acclimation site.	Yes. Spring chinook salmon smolts have been acclimated from 1996 - 1998.
1996	Powerdale Trapping Facility completed.	Yes. Facility has been in continuous operation since completion. All anadromous fish are trapped and sorted at river mile 4.0 (Hood River).
1996	Genetic analysis of fish from different portions of the Hood River subbasin will be completed.	Yes. Tissue samples for genetic analysis were collected from Hood River subbasin streams from 1994-96.
1997	Collection of Hood River summer steelhead stock began at Powerdale Dam	Yes. Approximately 25,000 summer steelhead smolts are scheduled for release into Hood River in 1999.
1997	Hood River Production Program EIS completed	Yes. The EIS established interim objectives for smolt production through 2002.
1997	Determination of spacial distribution for anadromous adult holding and spawning was completed in 1997.	Yes. Spacial distribution for summer and winter steelhead, spring and fall chinook, and coho salmon has been determined in the Hood River subbasin.
1997	Rearing density estimates for indigenous fish populations in the Hood River subbasin were made for selected sites from 1994-97.	Yes. Estimated numbers of indigenous Hood River fish populations were completed at selected sites.
1997	130 cfs East Fork Irrigation District diversion was equipped with fish screens.	Yes. Screening will prevent loss of downstream migrants into irrigation distribution system.
1998	Hood River smolt migration has been monitored from 1994 - 98.	Yes. Freshwater age specific estimates of Hood River subbasin smolt production has been completed from 1994-98.
1998	Parkdale Fish Facility completed and operational	Yes. Spring chinook salmon and summer steelhead broodstock have been held. Approximately 40,000 spring chinook eggs collected and incubated to eyed stage before transfer to Round Butte.
1998	Oak Springs Hatchery - addition to hatchery building completed, including isolation incubation and early rearing. New raceways and water supply nearing completion - will be completed for spring 99 rearing.	Yes. Rearing 98 brood summer steelhead (50,000) and winter steelhead (25,000). Fin marking completed.
1998	Round Butte Hatchery / Pelton Ladder - 125,000 spring chinook reared to smolt stage and released into Hood River acclimation ponds.	Yes. Interim smolt production goal reached (125,000 smolts) with Round Butte Hatchery/Pelton Ladder production since 1996.
1998	Selected, high priority, Hood River subbasin fish habitat has been protected and/or restored.	Yes. 1.5 miles of riparian livestock exclosure fencing has been constructed. 250 feet of unstable stream bank has been stabilized with

		vegetative plantings and/or bio engineered riprap.
1998	Hood sport angler harvest has been monitored since 1996.	Yes. Species and race specific estimates of jack and adult anadromous harvest have been made for the mainstem below Powerdale Dam from 1996-98.
1998	Biological data has been collected from all salmonids trapped at the Powerdale Dam since 1991.	Yes. Species, race, and freshwater/ocean age specific estimates of wild, natural, and hatchery escapements of anadromous salmonids has been completed from 1994-98.
1998	Riparian habitat along Fifteenmile Creek subbasin streams have been protected to speed vegetative recovery.	Yes. 100 miles of riparian livestock exclosure fencing has been completed from 1987 - 1998.
1998	Fifteenmile Creek subbasin instream habitat was improved by installing instream structures.	Yes. 1,013 instream fish habitat structures have been installed in Fifteenmile Creek subbasin streams since 1987.
1998	Off site livestock watering developments have been constructed to reduce livestock grazing of riparian habitat in the Fifteenmile Creek subbasin.	Yes. Five off site water developments using solar pumps or spring developments have been installed for livestock use.
1998	Fish habitat improvements on private lands in the Fifteenmile Creek subbasin have been maintained from 1987 - 1998.	Yes. All riparian fence, instream structure, and off site water development maintenance has been performed as needed.
1998	1998 steelhead smolt migration estimates were made for the Fifteenmile Creek subbasin.	Yes. U.S. Fish and Wildlife Service funded the operation of a downstream migrant trap to estimate total smolt emigrants.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Achieve an escapement goal of 1,700 jack and adult spring chinook salmon to the mouth of the Hood River and a spawner escapement goal of 400 jack and adult spring chinook salmon to the Hood River subbasin.	*	Tasks (Strategies) a, b, c, d, g, h, i, and j work cumulatively to achieve this objective.
2	Achieve an escapement goal of 8,000 adult summer steelhead (1,200 wild and 6,800 hatchery) to the mouth of the Hood River and a spawner escapement goal of 2,400 adult summer steelhead (1,200 wild and 1,200 hatchery) to the Hood River subbasin.	*	Tasks (Strategies) a, b, c, d, e, g, h, and j work cumulatively to achieve this objective.
3	Achieve an escapement goal of 5,000 winter steelhead (1,200 wild and 3,800 hatchery) to the mouth of the Hood River and a spawner escapement goal of 2,400 winter steelhead (1,200 wild and 1,200 hatchery) to the Hood River subbasin.	*	Tasks (Strategies) a, b, c, d, e, f, g, h, and j work cumulatively to achieve this objective.
		a	Determine abundance, distribution, and life history patterns of anadromous and resident fishes in the Hood River subbasin.
		b	Identify the population genetic structure, systematics, and distribution of genetically

Obj 1,2,3	Objective	Task a,b,c	Task
			unique steelhead , cutthroat, and resident rainbow trout populations in the Hood River subbasin.
		c	Develop fish culture procedures for steelhead and spring chinook to minimize future genetic impacts to the wild gene pools in the Hood River subbasin.
		d	Achieve an interim run of 850 jack and adult spring chinook salmon to Hood River, with a spawner escapement of 400 jacks and adults.
		e	Achieve an interim run of 2,340 summer steelhead (540 wild and 1,800 hatchery) to Hood River, with a spawner escapement of 1,000 steelhead (500 wild and 500 hatchery) Hood River stock.
		f	Achieve an interim run of 2,785 winter steelhead (535 wild and 2250 hatchery) to Hood River, with a spawner escapement of 1,000 (500 wild and 500 hatchery) Hood River stock.
		g	Determine the amount and condition of habitat available to anadromous salmonids in the Hood River subbasin.
		h	Restore and recover habitat lost as a consequence of man's activities in the Hood River subbasin.
		i	Achieve a 95% compliance rate with statutes regulating the harvest of spring chinook salmon in the Hood River subbasin.
		j	Reduce the incidence of vandalism on structures and equipment used to implement BPA funded projects and programs.
4	Achieve an escapement goal of 1,500 wild adult winter steelhead to the mouth of Fifteenmile Creek and a spawner escapement goal of 900 adult winter steelhead to the Fifteenmile Creek subbasin.	a	Restore and recover habitat lost as a consequence of man's activities in the Fifteenmile Creek subbasin.
		b	Determine abundance and life history patterns of anadromous and resident fishes in the Fifteenmile Creek subbasin.
		c	Reduce the incidence of vandalism on structures and equipment used to implement BPA funded projects and programs.
5	Achieve and sustain levels of habitat and species productivity in order to mitigate for all wildlife and wildlife habitat losses caused by the development and operation of the Columbia Basin hydro power system.	a	Identify potential protection and enhancement projects within the Hood River / Fifteenmile subbasin.
		b	Implement wildlife or wildlife enhancement measures.

Obj 1,2,3	Objective	Task a,b,c	Task
		c	Monitor and evaluate wildlife habitat and wildlife species response to implemented enhancement activities within the Hood River/Fifteenmile Creek subbasin.

Cost sharing

Note: The following Cost Sharing Table reflects projected expenditures from BPA and other sources for FY2000 that will help to achieve the proposal's biological objectives. There have been a variety of fishery related projects accomplished within the Umbrella Proposal Area in recent years from other funding sources, but it is extremely difficult to assemble all of the appropriate data to document these projects.

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
Bonneville Power Administration	Funding for HRPP and FCHRP	22.1%	$2,121,590
PacifiCorp	Final design and initial construction of Powerdale Dam fish screens	11.4%	1,100,000
Long View Fibre Company	Use of West Fork Hood River acclimation site and site preparation	0.03%	2,500
Middle Fork Irrigation District	Convert open ditch to pipe, remove three diversion structures (fish migration obstacles) on Evans Creek	12.5%	1,200,000
Middle Fork Irrigation District	Install new diversions, fish screens, and fish ladders on Coe and Elliot branches	10.4%	1,000,000
Middle Fork Irrigation District	Instream spawning gravel supplementation - Clear Branch	0.1%	10,000
U.S. Forest Service	Instream habitat restoration	1.6%	150,000
East Fork Irrigation District	Acclimation sit for Winter Steelhead on East Fork Hood River	0.1%	10,000
East Fork Irrigation District	Install new fish screen on Neal Creek 30 cfs diversion	5.2%	500,000
Farmers Irrigation District	Instream habitat restoration - Greenpoint Creek	5.2%	500,000
Farmers Irrigation District	Water conservation piping of open canal and installation of new fish screen on 80cfs diversion from Hood River	15.6%	1,500,000
Oregon Department of Fish and Wildlife	NMFS fish screening and passage	1.0%	100,000
CTWSRO Salmon Corps and AmeriCorp	Riparian fencing and acclimation pond assembly	0.4%	35,000
Local landowners	Cost share for implementing BMPs (hazmit) Fifteenmile Creek subbasin	0.3%	25,000
Local landowners	Cost share for GWEB and 319 funds	0.3%	25,000
Local landowners	Cost share erosion control	0.3%	25,000
U.S. Forest Service	Watershed health improvements on forest land in headwaters	1.0%	100,000

USDA - NRCS	Implementing conservation measures on private land	2.5%	245,000
USDA - NRCS & FSA	Conservation Reserve Program - retires cropland to permanent vegetation	7.0%	675,000
USDA - NRCS & FSA	Hazard mitigation grant to reduce soil erosion on private land	1.0%	100,000
Wasco County SWCD	GWEB grant to improve watershed health	0.6%	60,000
Wasco County SWCD	319 grant implementation to improve water quality	0.4%	40,000
Wasco County SWCD	Soil and Water Commission grant to control erosion in Company Hollow	0.2%	15,000
Wasco County SWCD	Oregon Dept. Of Agriculture water quality grant	0.04%	4,000
Local landowners	cost share for implementing EQIP practices	0.6%	61,250
Fifteenmile Watershed Council	In kind support	0.05%	5,000
		Total project cost (including BPA portion)	$9,609,340

* Projected FY2000 HRPP and FCHRP budget total

PART II - NARRATIVE

Section 7. Abstract

The Hood River / Fifteenmile Creek Subbasin Umbrella encompasses individual project proposals with a common goal of restoring summer and winter steelhead populations in their historic habitats and re-establishing a self-sustaining spring chinook salmon population in the Hood River subbasin in accordance with the Hood River Production Master Plan (July 1991) and the Fifteenmile Creek Basin Fish Habitat Improvement Plan (1987). The long term objectives for this geographic umbrella are to return 8,000 summer steelhead, 5,000 winter steelhead, and 1,700 spring chinook salmon to Hood River and return 1,500 winter steelhead to Fifteenmile Creek.

Restoring the Hood River steelhead populations will require supplementation utilizing hatchery reared smolts derived from wild Hood River stock. Re-introduction of spring chinook salmon will be achieved with the use of Deschutes River stock, which are from the neighboring watershed and best suited to the habitat conditions of the Hood River subbasin. The Hood River supplementation management scenario will allow increased spawner escapement and distribution, and maintain compliance with Oregon's Wild Fish Management Policy. This management scenario will result in the production of increased numbers of naturally produced smolts that will emigrate from the subbasin. Other stock recovery restoration activities implemented in the Hood River subbasin include: restricting access for out-of-basin and excess hatchery adults above rivermile 4.0 (Powerdale Dam) to protect the native gene pools; exclusive use of indiginous Hood River steelhead stocks; matrix spawning; acclimation; volitional smolt releases; and fish habitat restoration. Completed, ongoing, and planned fish habitat restoration activities and long term habitat project maintenance will result in improved egg to smolt survival. Restoring the Fifteenmile Creek winter steelhead population will be accomplished by providing improved fish habitat, including: increased habitat diversity; increased stream shading; reduced water temperature extremes; reduced sedimentation; unobstructed fish passage; and the screening of all irrigation withdrawls. Fifteenmile Creek fish habitat restoration measures and long term habitat project maintenance will result in improved egg to smolt survival. This population restoration is specifically dependent upon the continuing maintenance of 100 miles of riparian livestock exclosure fencing and more than 1,000 instream structures.

The ultimate measure of project success will be the achievement of biological fish objectives for Hood River and Fifteenmile Creek subbasins. ODFW and CTWS monitoring and evaluation projects will be used to evaluate project implementation and make management recommendations.

Restoring wildlife numbers and species diversity will be accomplished by acquiring and/or enhancing wildlife habitat in the Hood River and Fifteenmile Creek subbasins.

Section 8. Project description

a. Technical and/or scientific background

The Hood River subbasin historically supported populations of summer and winter steelhead, spring and fall chinook salmon, coho salmon, rainbow, cutthroat, and bull trout. The Hood River summer steelhead are currently at a high risk of extinction. Hood River winter steelhead are at a moderate risk of extinction. Both steelhead populations are listed as threatened species under the Endangered Species Act (ESA). Spring chinook were extirpated from the Hood River subbasin in the late 1960's. Fall chinook and coho salmon adults are primarily stray fish originating at Bonneville Pool fish hatcheries. Bull trout have limited spawning and rearing distribution and are listed as a threatened species under ESA. The Hood River anadromous fish populations have declined as the result of impacts of the development and operation of the Columbia River hydro system, as well as unscreened or inadequately screened diversions, low stream flow, loss of habitat diversity, sedimentation, and fish passage obstacles.

The development of strategies for the Hood River subbasin was first initiated by ODFW and CTWSRO in 1990. This process culminated in the adoption of the Hood River and Pelton Ladder master plans by the co-managers in July 1991 (O'Toole and Oregon Department of Fish and Wildlife, 1991; and Smith and the Confederated Tribes of the Warm Springs Reservation of Oregon 1991). These master plans were subsequently approved by the NPPC in 1992. The projects, which have been implemented as an outgrowth of these master plans, have been collectively grouped into the Hood River Production Program (HRPP). All the fish related BPA funded projects in the Hood River subbasin currently fall under this geographic umbrella proposal.

The HRPP implementation has included a major change in the hatchery steelhead broodstock used for Hood River releases. Only indigenous stocks of steelhead are being used for the supplementation project. Collection of wild winter steelhead broodstock began in 1992 with an angler catch program. The following year broodstock were collected throughout the run at the Powerdale Dam fish ladder and were subsequently matrix spawned to maximize potential genetic diversity. Out of basin origin winter steelhead have not been passed upstream from Powerdale Dam since 1993 in order to protect the genetic integrity of the native population. Hood River wild summer steelhead were first collected for broodstock during the 1997-98 run. Out of basin stocks of hatchery summer steelhead are now prevented from passing upstream of Powerdale Dam. The first release of Hood River stock summer steelhead smolts is planned for the spring of 1999. Winter steelhead smolt releases into Hood River have been acclimated since 1996. All future releases of winter and summer steelhead smolts are scheduled for volitional release from HRPP acclimation facilities in order to increase smolt to adult survival and reduce residualism or other adverse impacts associated with competition with wild resident and anadromous stocks. ODFW implemented a mandatory wild steelhead release angling regulation within the Hood River subbasin in 1992 to protect depressed wild populations during the subbasin sport fishery. Hood River upstream from Powerdale Dam was closed to all salmon and steelhead angling in April 1998 to provide extra protection for spawning fish.

Deschutes spring chinook were first released into Hood River in 1993. In 1997 the HRPP spring chinook broodstock were all collected from adults returning to Powerdale Dam. Spring chinook are held for spawning at the Parkdale Facility. Early egg incubation also occurs at Parkdale before the eyed eggs are transferred to Round Butte Fish Hatchery to complete incubation and rearing to smolt size. Hatchery spring chinook smolts destined for Hood River are reared in the semi-natural rearing cells within the modified Pelton fish ladder. This rearing strategy has demonstrated consistently higher smolt to adult survival than conventional hatchery rearing methods. Spring chinook have been volitionally released into the West Fork Hood River since 1996. All future releases are scheduled for pre-release acclimation and volitional release to improve smolt to adult survival and reduce residualism, which will reduce in-basin intra and inter specific competition.

The Fifteenmile Creek subbasin supports the eastern most population of winter steelhead in the Columbia River Basin, as well as pacific lamprey, and resident rainbow and cutthroat trout. These anadromous and resident fish populations have suffered from extensive habitat degradation associated with water withdrawal, stream channel modifications, loss of riparian habitat, stream temperature extremes, and heavy stream sedimentation and their numbers are at or near the historic low. The steelhead population has been proposed for listing as a threatened species under ESA. This population has never been supplemented with hatchery steelhead. It is the intent of the Fifteenmile Creek Habitat Restoration Project (FCHRP) to restore this population by restoring stream habitat. ODFW closed the stream system to steelhead angling in 1994. The Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO) closed tribal subsistence fishing for steelhead in the stream in 1991. The FCHRP has completed 100 miles of riparian exclosure fencing to protect more than 50 miles of stream from livestock grazing. Six significant fish passage barriers have been modified or structures have been built to insure adult and juvenile steelhead passage. All gravity and pump irrigation withdrawals have been equipped with protective fish screening, and more than 1000 instream structures have been installed to enhance instream habitat diversity.

b. Rationale and significance to Regional Programs

The individual projects that are ongoing under this umbrella proposal help to mitigate the losses of fish and wildlife associated with the construction and operation of federal hydropower facilities in the Columbia River Basin. The Hood River Production Program (HRPP) will re-establish a self-sustaining spring chinook salmon population in the Hood River subbasin. The HRPP will also restore populations of native winter and summer steelhead in the Hood River subbasin by supplementing these populations with hatchery-reared progeny of Hood River stock. Supplementation is the best alternative for restoring these extremely depressed steelhead populations. Use of hatchery-reared Hood River stocks will help to jump start the remnant naturally reproducing populations and take advantage of the subbasin's under-seeded habitat. The HRPP will achieve these two objectives in a manner that protects and mitigates, where practicable, other aquatic species in the subbasin. HRPP will contribute to the successful restoration and protection of fish and wildlife habitat in the subbasin. The HRPP monitoring and evaluation component provides the mechanism to review results of implemented program actions and provide feedback to make programmatic changes.

The NPPC under the Columbia River Basin Fish and Wildlife Program has approved a number of projects in Oregon, Washington, and Idaho that are similar to HRPP. Several of these projects have been implemented, including combinations of supplementation and habitat restoration projects within the Umatilla and Yakima subbasins, involving state and tribal entities (CBFWA, 1997). The individual proposals included within this umbrella will restore steelhead populations that are listed, or proposed for listing, as " Threatened" under ESA. The proposal will also result in the re-establishment of the extirpated Hood River spring chinook salmon.

The HRPP is consistent with several subsections of Section 7.0 of the NPPC's Fish and Wildlife Program. Specifically, the project is consistent with sections 7.0A, 7.4L.1 ,and 7.4L.2, with a combination of supplementation (HRPP, ongoing projects) and habitat restoration activities. The ultimate HRPP goal is to significantly increase natural fish production and survival. This goal will be achieved through a number of activities within the subbasin in addition to hatchery supplementation. These other activities include: cooperative habitat restoration measures with private, corporate, and public land managers; watershed restoration activities, coordinated through the Hood River Watershed Council; and improvements in adult fish passage, juvenile fish protection (i.e. screening), water quality, and water quantity. These habitat improvements will increase the likelihood that the HRPP supplementation activities will be successful in achieving project objectives. The companion HRPP M&E Project is assessing the affects of supplementation.

Measure 703(f)(5) of the Northwest Power Planning Council's 1987 Fish and Wildlife Program specifically recommended BPA investigate the feasibility of developing artificial production facilities for chinook salmon and steelhead in Hood River. One of the strategies described in the Hood River subbasin plan was to develop supplementation actions to increase the naturally spawning fish populations in the Hood River subbasin.

The rationale behind the Fifteenmile Creek Habitat Restoration Project is to increase the stream system's carrying capacity and ultimately winter steelhead smolt production by minimizing or eliminating fish habitat deficiencies through restoration and protection measures. Improved stream habitat will result in improved egg to smolt survival,

which will translate into more smolts produced. Depressed numbers of winter steelhead will begin to rebound after controlling livestock grazing in the stream corridors, stabilizing stream banks, and providing additional fish habitat diversity. Failure to maintain livestock exclosure fencing could negate years of vegetative recovery. Failure to maintain fish screens at water withdrawal points and fish passage structures could result in immediate fish losses; pushing this steelhead population closer to extinction. This project compliments other ongoing stream and watershed restoration activities being conducted by CTWSRO, Fifteenmile Creek Watershed Council, Soil and Water Conservation District, Natural Resource Conservation Service, and the U.S. Forest Service.

c. Relationships to other projects

The Hood River / Fifteenmile Creek Umbrella Proposal encompasses nine separate projects designed to increase production of winter steelhead in Hood River and Fifteenmile Creek, as well as increase production of wild Hood River summer steelhead. The proposal also includes the re-establishment of spring chinook within the Hood River subbasin. The nine separate projects, approved by the NPPC and funded by BPA, provide funding for four broad categories of activities. These include engineering, implementation (O&M), and monitoring and evaluation studies and habitat restoration. Funding for the engineering component of the HRPP provided for the design of riparian fencing, and fish passage structures in the Fifteenmile Creek drainage; as well as the design and construction of facilities at Powerdale Dam, Parkdale, and Oak Springs Hatchery that were needed to implement the HRPP. Funding for implementation, or operation and maintenance, provides for maintenance of fish habitat structures, broodstock collection, holding, fish transport, spawning, rearing, marking, and tagging. Funding for monitoring and evaluation studies provides for the evaluation of the HRPP and any interaction the hatchery program may be having on indigenous fish populations. The Hood River Habitat Project is important in assisting species recovery by identifying habitat deficiencies and restoring fish habitat where opportunities exist in the Hood River subbasin. And finally, the Fifteenmile Creek Habitat Restoration Project is important for restoring fish habitat where opportunities exist in the Fifteenmile Creek subbasin.

There are a number of other, non-BPA funded programs in the Hood River subbasin that have direct positive impacts on the success of the HRPP. For example, the East Fork Irrigation District (EFID) has implemented new fish screening on their 130 cfs diversion from the East Fork Hood River. In the process of installing this new fish screen EFID constructed concrete sediment retention ponds. One of these ponds has been provided, at no cost to the project, for steelhead smolt acclimation. EFID is working with HRPP personnel to determine the most efficient type of fish screen to install at their 30 cfs diversion on Neal Creek. The Middle Fork Irrigation District (MFID) provided a temporary adult holding facility adjacent to the Parkdale site. In addition MFID has cooperated in the construction of the Parkdale facility, including the water supply tap into their powerhouse tailrace. MFID, in cooperation with the US Forest Service, has recently installed an upstream migrant fish trap at the base of Clear Branch Dam (Middle Fork Hood River). The Farmers Irrigation District (FID) has implemented instream habitat restoration on a major West Fork Hood River tributary. FID has been actively upgrading district fish screens and implementing water conservation measures. The Mount Hood National Forest has had an active stream habitat restoration program throughout the subbasin. Their work has included the placement of instream structures and large wood in each of the main Hood River tributaries with a goal of restoring instream habitat diversity. The Hood River Watershed Group is taking an active role in activities that will improve the overall condition of the Hood River watershed and streams. PacifiCorp has provided the land needed for development of the Powerdale Fish Facility. They are currently undergoing FERC relicensing of their Powerdale Hydroelectric Project, which should result in major improvements to downstream migrant screening, instream minimum flows, overall water quality and development of an operations manual for daily operation of Powerdale Dam. PacifiCorp recently made substantial improvements to the Powerdale Dam fish ladder.

There are a number of other, non-BPA funded programs in the Fifteenmile Creek subbasin that have direct positive impacts on the success of the Fifteenmile Creek Habitat Restoration Project. ODFW volunteers constructed a fish ladder to improve passage at a migration obstacle located at river mile 0.5. The U.S. Forest Service has implemented instream habitat restoration and fish passage projects on the Mount Hood National Forest. The CTWSRO has implemented riparian fencing on tribal trust lands. The U. S. Fish and Wildlife Service funded the 1998 project to monitor steelhead smolt migration from the stream system. The NRCS and SWCD have implemented stream bank and upland watershed treatments to reduce soil erosion and stream sedimentation. The USFWS and SWCD have implemented demonstration bio-engineering streambank stabilization projects. The Oregon Water Trust has acquired consumptive water rights and converted them to instream rights. Numerous private landowners have cooperated on stream corridor restoration projects, foregoing grazing and cropping.

d. Project history (for ongoing projects)

The Hood River Production Project (HRPP) is funded by Bonneville Power Administration. HRPP is a fish supplementation and fish habitat restoration project jointly implemented by ODFW and CTWSRO. The NPPC, in accepting the HRPP Master Plan, recommended adopting a three-phased approach which included the collection of baseline information, project implementation and facilities construction, and follow-up monitoring and evaluation (NPPC, 1992). Comprehensive collection of data began in the Hood River subbasin in 1991, including information on the life history and production of anadromous salmonid stocks and habitat availability and adequacy (CTWS and ODFW 1997). In 1996 the HRPP Environmental Impact Statement was completed cooperatively by BPA, CTWSRO, and ODFW. A record of decision, which supports the NPPC goals, was completed on October 10, 1996 by BPA administrator Randy Hardy.

The HRPP has always strived to use or expand upon existing, proven, fish facilities where ever possible, rather than develop new facilities. Project implementation has included the recent completion of isolation incubation and early rearing ponds, as well as new raceway ponds at Oak Springs Fish Hatchery. These facilities will be instrumental in the summer and winter steelhead rearing program. The Powerdale Fish Facility, completed in November 1997, is a state of the art fish trapping and sorting facility located at Powerdale Dam (Hood River, rivermile 4.0). This facility allows project personnel to efficiently trap, sort, and/or transport adult salmonids arriving at Powerdale Dam. The Parkdale Fish Facility, completed in August 1998, provides adult holding, spawning, early incubation, as well as smolt acclimation capabilities. The HRPP Project 9301900 will become solely an O&M project in FY2000. Other important physical facilities associated with the HRPP include: three rearing cells in the Pelton fish ladder; steelhead acclimation ponds on the East Fork Hood River (provided at no charge by the East Fork Irrigation District); and portable fish acclimation ponds, located on Longview Fibre Company property along the West Fork Hood River.

To date, other related HRPP projects have completed and assimilated subbasin biological and physical habitat surveys and have identified areas in need of habitat restoration. The project has planned and undertaken several habitat restoration projects. One significant project identified in the Hood River Master Plan called for the screening of an unscreened 130 cfs East Fork Hood River irrigation diversion This diversion was screened by the East Fork Irrigation District in 1997.

BPA has funded habitat restoration work on the Fifteenmile Creek Habitat Restoration Project (FCHRP) since 1987 as project 86-79-01. The FCHRP is funded by BPA and implemented by ODFW with close coordination with CTWSRO and local cooperators. The underlying management philosophy for habitat restoration was the "*Top Down*" approach; beginning upstream near the headwaters and proceeding downstream through the privately owned land. This technique cumulatively builds on previous habitat restoration treatments and greatly improves the overall success of the program. Fifteen year leases, negotiated with private landowners with an implied ODFW (BPA funded) maintenance provision for the duration of the lease, have been critical for implementation and perpetuation of these projects. This project has resulted in the construction of 100 miles of riparian fence, installation of 1,000 instream habitat structures, 96 fish screens, and 6 fish passage improvement structures. Implementation and maintenance of this project are ongoing.

HRPP and FCHRP reports and technical papers include the following:

CTWSRO and ODFW, Cooperators. 1997. Annual Progress Report. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of the Confederated Tribes of Warm Springs Reservation of Oregon and Oregon Department of Fish and Wildlife (Projects 89-053-03 and 89-053-04) to Bonneville Power Administration, Portland, Oregon.

CTWSRO and ODFW, Cooperators. 1996. Annual Progress Report. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of the Confederated Tribes of Warm Springs Reservation of Oregon and Oregon Department of Fish and Wildlife (Projects 89-053-03 and 89-053-04) to Bonneville Power Administration, Portland, Oregon.

CTWSRO and ODFW, Cooperators. 1995. Annual Progress Report. Hood River and Pelton Ladder evaluation studies. Annual Progress Report of the Confederated Tribes of Warm Springs Reservation of Oregon and

Oregon Department of Fish and Wildlife (Projects 89-053-03 and 89-053-04) to Bonneville Power Administration, Portland, Oregon.

Bonneville Power Administration. 1996. Final Environmental Impact Statement. Bonneville Power Administration (Contract DOE/EIS-0241). Portland, Oregon.

O'Toole, P., and Oregon Department of Fish and Wildlife. 1991. Hood River Production Master Plan. Final report of the Confederated Tribes of the Warm Springs Reservation of Oregon and the Oregon Department of Fish and Wildlife (Project 88-053, Contract DE-B179-89BP00631) to Bonneville Power Administration, Portland, Oregon.

Smith, M., and Confederated Tribes of the Warm Springs Reservation of Oregon. 1991. Pelton Ladder Master Plan. Final report of the Oregon Department of Fish and Wildlife and the Confederated Tribes of the Warm Springs Reservation of Oregon (Project 89-029, Contract DE-BI79-89BP01930) to Bonneville Power Administration, Portland, Oregon.

ODFW and CTWSRO (Oregon Department of Fish and Wildlife and Confederated Tribes of the Warm Springs Reservation of Oregon). September, 1990. Hood River Subbasin Salmon and Steelhead Production Plan.

Jennings, M.D. and M. Lambert. 1996. Acclimating salmonids in the wilds near Hood River, Oregon. Proceedings of the 47th Annual Northwest Fish Culture Conference. CTWSRO.

Implementation of the O&M portion of the HRPP has resulted in some significant resource achievements, including a major switch in the hatchery steelhead broodstock used for Hood River releases, from out of basin stocks (Big Creek and Skamania stocks) to the Hood River indigenous stocks. ODFW has committed to implementing the HRPP in compliance with the Oregon Wild Fish Management Policy. Hood River winter steelhead broodstock have been selected from throughout the entire run at the Powerdale Dam fish ladder since 1993 and have been matrix spawned to maximize potential genetic diversity. Out-of basin origin winter steelhead have not been passed upstream from Powerdale Dam since 1993, in order to protect the genetic integrity of the wild Hood River population (CTWS, 1997). Winter steelhead smolts released into the Hood River subbasin have been acclimated since 1996 (Jennings, 1996). Hood River wild summer steelhead were first collected for broodstock during the 1997-98 run. Out-of basin origin hatchery (i.e. Skamania stock) summer steelhead are now prevented from migrating upstream beyond Powerdale Dam. ODFW implemented mandatory wild steelhead release angling regulations within the subbasin beginning in 1992 to maximize protection of the depressed wild stocks during the subbasin sport fishery.

The HRPP has released approximately 125,000 Deschutes stock spring chinook salmon smolts and 40,000 to 60,000 Hood River stock winter steelhead smolts into the subbasin annually since 1993. The decision to use of Deschutes stock spring chinook was based on subbasin habitat similarities. These smolt releases have been acclimated prior to liberation since 1996. In 1997 the spring chinook broodstock for the HRPP were first collected from adults returning to the Powerdale Fish Facility. The collection of jack and adult broodstock from chinook returning to Hood River will ultimately result in progeny that are better adapted to the Hood River subbasin. Hatchery spring chinook smolts destined for the Hood River subbasin are being reared in cells within the modified Pelton fish ladder. This strategy has generally demonstrated consistently higher smolt to adult survival than conventional rearing methods used at other hatcheries in the Columbia River basin. These spring chinook smolts have been volitionally released from Hood River acclimation facilities since 1996.

The ongoing HRPP M&E project provides the data feedback needed to modify project actions when appropriate or necessary. For example: to restore the depressed wild steelhead populations, management actions have been implemented to maximize the protection of the wild component of the two steelhead stocks by implementation of wild release angling regulations. Blockage of access for out of basin stray steelhead and excess Hood River hatchery stock from the subbasin upstream of Powerdale Dam will insure protection of genetic integrity of the wild population. Matrix spawning of Hood River broodstock selected from throughout the run has been implemented to maintain natural genetic variability. Results from trapping winter steelhead out migrants indicates that acclimation has significantly reduced the percentage of in-river hatchery smolt residualism. This technique should result in better smolt to adult survival, while minimizing in-river interaction between hatchery smolts and wild anadromous and resident juveniles.

The BPA funds expended on the HRPP Projects from FY93 to FY98 totaled $8,540,768. This expenditure includes capital construction of the Powerdale Fish Facility, creation of rearing cells in the Pelton Fish Ladder, land purchase and initial construction at the Parkdale Facility site, and initiation of construction at Oak Springs Fish Hatchery. The BPA funds expended on the Fifteenmile Creek Habitat Restoration Project from FY93 to FY98 totaled $1,142,186. The Fifteenmile Creek Project has received BPA funding from 1986. The project has completed 100 miles of livestock fence ($800,000), 1,000 instream structures ($750,000), two fish ladders ($50,000), six spring developments ($30,000), and two rotary fish screens ($13,000). The combined BPA expenditures in the Hood River / Fifteenmile subbasins for FY93 to FY98 has totaled $9,682,954. FY 99 HRPP budget for all projects totals $1,731,613 and the Fifteenmile Creek Projects total $242,996. The total Hood River / Fifteenmile subbasin FY99 budget is $1,974,609.

e. Proposal objectives

The primary objectives and strategies of this umbrella proposal are to (1) establish a naturally self sustaining spring chinook salmon population in Hood River, (2) rebuild naturally self sustaining populations of wild winter and summer steelhead in the Hood River drainage, (3) maintain the genetic characteristics of the wild anadromous populations, (4) restore degraded fish habitat, (5) rebuild a naturally self sustaining population of wild winter steelhead in the Fifteenmile Creek drainage, (6) contribute to tribal and non-tribal fisheries, ocean fisheries, and the Northwest Power Planning Council's (NPPC) goal of doubling salmon runs in the Columbia Basin (O'Toole, P. 1991a), and (7) achieve and sustain levels of habitat and wildlife species productivity to mitigate for wildlife and wildlife habitat losses caused by the development and operation of the Columbia River hydro power system.

Specific proposal objectives and strategies include:

Objective 1. Achieve an escapement goal of 1,700 jack and adult spring chinook salmon to the mouth of the Hood River and a spawner escapement goal of 400 jack and adult spring chinook salmon to the Hood River subbasin.

Objective 2. Achieve an escapement goal of 8,000 adult summer steelhead (1,200 wild and 6,800 hatchery) to the mouth of the Hood River and a spawner escapement goal of 2,400 adult summer steelhead (1,200 wild and 1,200 hatchery) to the Hood River subbasin.

Objective 3. Achieve an escapement goal of 5,000 winter steelhead (1,200 wild and 3,800 hatchery) to the mouth of the Hood River and a spawner escapement goal of 2,400 winter steelhead (1,200 wild and 1,200 hatchery) to the Hood River subbasin.

The following strategies apply equally to proposal objectives 1 - 3, listed above.

Strategy a. Determine abundance, distribution, and life history patterns of anadromous and resident fishes in the Hood River subbasin.

Performance Measures: (1) A report characterizing the indigenous populations of resident and anadromous salmonids in the Hood River subbasin.
(2) A report evaluating the HRPP relative to its progress toward meeting the biological fish objectives.

Purpose: This strategy provides for the implementation of monitoring and evaluation studies. There are four ongoing projects (i.e. 8805303, 8805304, 9145, and 9301900) funded to achieve this strategy. These projects are primarily funded to monitor anadromous salmonid (1) subbasin smolt production, (2) in-river harvest, (3) subbasin escapements, (4) rearing densities, (5) selected life history and biological patterns, and (6) temporal and spacial distribution of indigenous fish populations. This information will be used to facilitate appropriate adaptive management. Information will also be used to estimate subbasin carrying capacity, develop stock recruitment curves, develop hatchery supplementation guidelines, develop broodstock collection protocol, and

minimize the HRPP's impact on indigenous fish populations. Activities under this strategy will require close coordination between the ODFW (i.e., the Mid-Columbia district and High Desert region), the Confederated Tribes of the Warm Springs Reservation, and other project cooperators to ensure the cost effective implementation of all actions designed to achieve the biological objectives defined for the Hood River subbasin.

Strategy b. Identify population genetic structure, systematics, and distribution of genetically unique steelhead, cutthroat, and resident rainbow trout populations in the subbasin.

Performance Measure: A report characterizing indigenous populations of steelhead and resident cutthroat and rainbow trout, and how these populations have been impacted by past subbasin hatchery practices.

Purpose: This strategy provides for genetic analysis of tissue and whole steelhead and resident trout collected in the subbasin.. A basic understanding of the existing genetic status of each population is critical to the development of hatchery supplementation guidelines. Development and adherence to these guidelines will minimize adverse genetic impacts to these populations.

Strategy c. Determine whether past hatchery programs have affected the genetic structure, systematics or distribution of indigenous fish populations in the Hood River subbasin.

Performance Measures: There are two projects (i.e., 8805303 and 885304) working to achieving this strategy. These projects will provide the genetic data needed to determine how past hatchery practices have impacted indigenous populations of steelhead, cutthroat and rainbow trout. The Hood River subbasin has been stocked with the Skamania stock of summer steelhead since 1958, Big Creek stock of winter steelhead from 1978 to 1986, Cedar Creek cutthroat trout from 1974 to 1978, and various stocks of hatchery rainbow trout from 1954 to 1996, and brown trout. None of these stocks were indigenous to the Hood River subbasin and have the potential to cause gene flow among the populations, and to reduce the genetic fitness of the populations.

Purpose: This strategy provides a mechanism to determine what genetic affects past hatchery fish releases into the Hood River subbasin may have had on indigenous anadromous and resident fish populations.

Strategy d. Achieve an interim run of 850 jack and adult spring chinook salmon to Hood River, with a spawner escapement of 400 jacks and adults.

Performance Measures: (1) Achieve an interim run of 850 jack and adult spring chinook salmon to Hood River, with a spawner escapement of 400 jacks and adults.
(2) Achieve an interim hatchery smolt production of 125,000 smolts for release into the Hood River subbasin.

Purpose: This strategy provides a mechanism to re-establish a Hood River subbasin spring chinook salmon population that was extirpated in the late 1960's. There are four ongoing projects (i.e., 9301900, 9500700, 8902900, and 8805303) to achieve this strategy . These projects implement the hatchery supplementation component of the HRPP. Activities associated with these projects include: (1) bio-sampling of all jack and adult salmonids escaping to Powerdale Dam, (2) broodstock collection, (3) adult holding, (4) spawning of broodstock, (5) egg incubation, (6) rearing to smolt size, and (7) acclimation of smolts. The collection of HRPP broodstock, spawning, and passage of adult fish above Powerdale Dam will follow appropriate HRPP Protocol to minimize genetic risk to the wild populations. The strategy listed above is an interim goal established in the HRPP's Environmental Impact Statement (EIS) and is intended to be the first milestone towards achieving the biological spring chinook salmon objective. These interim smolt production and adult escapement goals were developed based on the assumption that these milestones would be achieved by the year 2002.

Strategy e. Achieve an interim run of 2,340 summer steelhead (540 wild and 1,800 hatchery) to Hood River, with a spawner escapement of 1,000 steelhead (500 wild and 500 hatchery) Hood River stock.

Performance Measure: (1) Achieve an interim run of 2,340 summer steelhead to Hood River, with a spawner escapement of 1,000.
(2) Achieve an interim hatchery smolt production of 40,000 smolts for release into the Hood River subbasin.

Purpose: This strategy provides a mechanism to restore the Hood River subbasin summer steelhead population. There are four ongoing projects (i.e., 9301900, 9500700, 8902900, and 8805303) funded to achieve this strategy . These projects are primarily funded to implement the hatchery supplementation component of the HRPP. Activities associated with these projects include: (1) bio-sampling of all adult steelhead escaping to Powerdale Dam, (2) broodstock collection, (3) adult holding, (4) spawning of broodstock, (5) egg incubation, (6) rearing to smolt size, and (7) acclimation of smolts. The collection of HRPP broodstock, spawning, and passage of adult fish above Powerdale Dam will follow appropriate HRPP Protocol to minimize genetic risk to the wild populations. The strategy listed above is an interim goal established in the HRPP's Environmental Impact Statement (EIS) and is intended to be the first milestone towards achieving the biological summer steelhead objective. These interim smolt production and adult escapement goals were developed based on the assumption that these milestones would be achieved by the year 2002.

Strategy f. Achieve an interim run of 2,785 winter steelhead (535 wild and 2250 hatchery) to Hood River, with a spawner escapement of 1,000 (500 wild and 500 hatchery) Hood River stock.

Performance Measure: (1) Achieve an interim run of 2,785 winter steelhead to Hood River, with a spawner escapement of 1,000.
(2) Achieve an interim hatchery smolt production of 50,000 smolts for release into the Hood River subbasin.

Purpose: This strategy provides a mechanism to restore the Hood River subbasin winter steelhead population. There are four ongoing projects (i.e., 9301900, 9500700, 8902900, and 8805303) to achieve this strategy . These projects are primarily funded to implement the hatchery supplementation component of the HRPP. Activities associated with these projects include: (1) bio-sampling of all adult steelhead escaping to Powerdale Dam, (2) broodstock collection, (3) adult holding, (4) spawning of broodstock, (5) egg incubation, (6) rearing to smolt size, and (7) acclimation of smolts. The collection of HRPP broodstock, spawning, and passage of adult fish above Powerdale Dam will follow appropriate HRPP Protocol to minimize genetic risk to the wild populations. The strategy listed above is an interim goal established in the HRPP's Environmental Impact Statement (EIS) and is intended to be the first milestone towards achieving the biological winter steelhead objective. This interim smolt production and adult escapement goal was developed based on the assumption that these milestones would be achieved by the year 2002.

Strategy g. Determine the amount and condition of habitat available to anadromous salmonids in the Hood River subbasin.

Performance Measure: A report that characterizes habitat accessible to anadromous salmonids in the Hood River subbasin.

Purpose: This strategy will provide information on the existing status of the anadromous salmonid habitat in the Hood River subbasin. Habitat surveys were completed in 1996 under project 8805303 and a summary of these data will be completed under project 8805303. This information will be used to refine estimates of subbasin anadromous salmonid carry capacity and to prepare a prioritized list of habitat improvement projects designed to increase natural production (*see* **Strategy h**).

Strategy h. Restore and recover habitat lost as a consequence of man's activities in the Hood River subbasin.

Performance Measure: A report describing habitat restoration projects implemented in the Hood River subbasin.

Purpose: This strategy provides funding for the restoration / protection of anadromous salmonid habitat in the Hood River subbasin. The habitat restoration activities are included in project 9802100, that is being implemented by CTWSRO. These habitat restoration measures will include: (1) riparian livestock exclosure fencing, (2) improving fish passage, (3) improving instream habitat complexity, and (4) improving fish screening at water diversions. These projects will be implemented to contribute to the increased natural production of anadromous salmonids in the Hood River subbasin.

Strategy i. Achieve a 95% compliance rate with statutes regulating the harvest of spring chinook salmon in the Hood River subbasin.

Performance Measure: Achieve an interim compliance rate of 85% for statutes regulating the harvest of spring chinook salmon in the Hood River subbasin.

Purpose: This strategy provide additional law enforcement associated with the re-introduction of spring chinook salmon into the subbasin where they were extirpated in the late 1960's. The success of the re-introduction measures will depend on a high level of compliance with salmon related laws and regulations.

Strategy j. Reduce the incidence of vandalism on structures and equipment used to implement BPA funded projects and programs.

Performance Measure: Achieve an interim 75% reduction in damage costs to BPA funded equipment and structures.

Purpose: This strategy will provide the additional law enforcement needed for the security of BPA funded structures and equipment associated with Hood River subbasin anadromous fish restoration measures. Additional project security will help to reduce equipment and/or structural repair and replacement costs that could hamper or prevent implementation of important HRPP measures.

Objective 4. Achieve an escapement goal of 1,500 wild adult winter steelhead to the mouth of Fifteenmile Creek and a spawner escapement goal of 900 adult winter steelhead to the Fifteenmile Creek subbasin.

Strategy a. Restore and recover habitat lost as a consequence of man's activities in the Fifteenmile Creek subbasin.

Performance Measure: A report detailing the maintenance of riparian livestock exclosure fences, fish passage structures, fish screens, and instream habitat structures.

Purpose: This strategy provides for the continued maintenance of on the ground fish habitat restoration measures, including: (1) 100 miles of riparian livestock exclosure fencing, (2) 1,000 instream structures, (3) six fish passage structures, and (4) six off-channel livestock water developments. This project will also continue to collect limited monitoring data, including repetition of strategic photo points.

Strategy b. Determine abundance and life history patterns of anadromous and resident fishes in the Fifteenmile Creek subbasin.

Performance Measure: A report that characterizes the abundance and life history patterns of steelhead and resident trout in the Fifteenmile Creek subbasin.

Purpose: This strategy provides for the implementation of monitoring and evaluation studies. There is one ongoing project (9304001) that will continue to monitor anadromous outmigrants emigrating from

the Fifteenmile Creek system. These data, collected during this project, will help to refine natural anadromous production occurring within the Fifteenmile Creek subbasin.

Strategy c. Reduce the incidence of vandalism on structures and equipment used to implement BPA funded projects and programs.

Performance Measure: Achieve an interim 75% reduction in damage costs to BPA funded equipment and structures.

Purpose: This strategy will provide for the additional law enforcement needed for the security of BPA funded structures and equipment associated with Fifteenmile Creek subbasin anadromous fish restoration measures. Additional project security will help to reduce equipment and/or structural repair and replacement costs that could hamper or prevent implementation of important FCHRP measures.

Objective 5. Achieve and sustain levels of wildlife habitat and species productivity in the Hood River / Fifteenmile Creek subbasins in order to mitigate for all wildlife and wildlife habitat losses caused by the development and operation of the Columbia Basin hydro power system.

Strategy a. Identify potential protection and enhancement projects within the Hood River / Fifteenmile subbasin.

Performance Measure: A report describe wildlife or wildlife habitat mitigation opportunities identified in the Hood River / Fifteenmile Creek subbasins.

Purpose: This strategy provides for the planning needed for procurement or enhancement of wildlife habitat. The enhancement of wildlife habitat will result in the increase in the numbers and diversity of wildlife within the Hood River / Fifteenmile Creek subbasins.

Strategy b. Implement wildlife or wildlife enhancement measures.

Performance Measure: A report summarizing wildlife and wildlife habitat enhancement measures implemented, and/or wildlife habitat acquired.

Purpose: This strategy provides for the procurement or enhancement of wildlife habitat. The acquisition or enhancement of wildlife habitat will result in the increase in the numbers and diversity of wildlife within the Hood River / Fifteenmile Creek subbasins.

Strategy c. Monitor and evaluate wildlife habitat and wildlife species response to implemented enhancement activities within the Hood River / Fifteenmile Creek subbasins.

Performance Measure: A report characterizing the wildlife and/or wildlife habitat response to enhancement measures.

f. Methods

The Hood River / Fifteenmile Creek Umbrella Proposal will be implemented with the following actions associated with each strategy and objective contained in the individual project proposals. The following actions identify work that will be implemented to achieve a specific strategy (listed above). The specific projects that will be working to accomplish each strategy are listed by project number at the end of each action statement.

Objective 1. Achieve an escapement goal of 1,700 jack and adult spring chinook salmon to the mouth of the Hood River and a spawner escapement goal of 400 jack and adult spring chinook salmon to the Hood River subbasin.

Objective 2. Achieve an escapement goal of 8,000 adult summer steelhead (1,200 wild and 6,800 hatchery) to the mouth of the Hood River and a spawner escapement goal of 2,400 adult summer steelhead (1,200 wild and 1,200 hatchery) to the Hood River subbasin.

Objective 3. Achieve an escapement goal of 5,000 winter steelhead (1,200 wild and 3,800 hatchery) to the mouth of the Hood River and a spawner escapement goal of 2,400 winter steelhead (1,200 wild and 1,200 hatchery) to the Hood River subbasin.

Strategy a. Determine abundance, distribution, and life history patterns of anadromous and resident fishes in the Hood River subbasin.

Action 1. **Monitor smolt production.** (Project 8805304)
Action 2. **Monitor harvest.** (Project 8805304)
Action 3. **Monitor escapements.** (Projects 8805303, 8805304, and 9301900)
Action 4. **Describe distribution.** (Projects 8805303, 8805304 and 9145)
Action 5. **Monitor rearing densities:** (Projects 8805303, 8805304 and 9145)
Action 6. **Monitor selected life history patterns:** (Projects 8805303 and 8805304)
Action 7. **Monitor selected morphometric and meristic characteristics.** (Projects 8805303 and 8805304)
Action 8. **Evaluate hatchery production releases.** (Projects 8805303)
Action 9. **Coordination.** (Projects 8805303, 8805304, 9301900, and 9145)

Strategy b. Identify population genetic structure, systematics, and distribution of genetically unique steelhead, cutthroat, and resident rainbow trout populations in the subbasin.

Action 1. **Describe the systematics, population structure and distribution of wild Oncorhynchus mykiss.** (Projects 8805303 and 8805304)
Action 2. **Describe the systematics, population structure and distribution of wild Oncorhynchus clarki.** (Projects 8805303 and 8805304)
Action 3. **Describe the impacts of past hatchery programs.** (Projects 8805303 and 8805304)

Strategy c. Develop fish culture procedures for steelhead and spring chinook to minimize future genetic impacts to the wild gene pools in the Hood River subbasin.

Action 1. **Develop a broodstock collection protocol for summer and winter steelhead, and spring chinook salmon to minimize future genetic impacts.** (Projects 8805303 and 8805304)
Action 2. **Develop a spawning protocol for summer and winter steelhead, and spring chinook salmon to minimize future genetic impacts.** (Projects 8805303 and 8805304)
Action 3. **Develop an adult fish passage protocol for summer and winter steelhead, and spring chinook salmon at the Powerdale Fish Facility to minimize future genetic impacts.** (Projects 8805303, 8805304, 8902900, 9301900, and 9500700)

Strategy d. Achieve an interim run of 850 jack and adult spring chinook salmon to Hood River, with a spawner escapement of 400 jacks and adults.

Action 1. **Count and bio-sample jack and adult spring chinook salmon at Powerdale Dam and Parkdale.** (Project 9301900)
Action 2. **Collect hatchery broodstock at Powerdale Dam.** (Project 9301900)
Action 3. **Hold and spawn hatchery broodstock at Parkdale.** (Project 9301900)
Action 4. **Incubate eggs at Parkdale and at Round Butte Hatchery.** (Projects 9500700, 8902900, and 9301900)
Action 5. **Rear and mark hatchery juveniles at Round Butte Hatchery.** (Projects 9500700 and 8902900)
Action 6. **Finish rear hatchery juveniles in Pelton ladder and transport to Hood River acclimation facilities.** (Projects 9500700 and 8902900)

Action 7. **Release acclimated hatchery smolts into the Hood River subbasin.** (Projects 8805303)
Action 8. **Coordination.** (Projects 8805304, 8805303, 8902900, 9500700, and 9301900)

Strategy e. Achieve an interim run of 2,340 summer steelhead to Hood River, with a spawner escapement of 1,000 steelhead (500 wild and 500 hatchery) Hood River stock

Action 1. **Count and bio-sample adult summer steelhead at Powerdale Dam and Parkdale.** (Project 9301900)
Action 2. **Collect hatchery broodstock at Powerdale Dam.** (Project 9301900)
Action 3. **Hold and spawn hatchery broodstock at Parkdale.** (Project 9301900)
Action 4. **Incubate eggs at Parkdale.** (Project 9301900)
Action 5. **Rear hatchery juveniles at Oak Springs Hatchery.** (Project 9301900)
Action 6. **Release acclimated hatchery smolts into the Hood River subbasin.** (Project 8805303)
Action 7. **Coordination.** (Projects 8805304, 8805303, and 9301900)

Strategy f. Achieve an interim run of 2,785 winter steelhead to Hood River, with a spawner escapement of 1,000 (500 wild and 500 hatchery) Hood River stock.

Action 1. **Count and bio-sample adult winter steelhead at Powerdale Dam and Parkdale.** (Projects 9301900)
Action 2. **Collect hatchery broodstock at Powerdale Dam.** (Project 9301900)
Action 3. **Hold and spawn hatchery broodstock at Parkdale.** (Project 9301900)
Action 4. **Incubate eggs at Oak Springs Hatchery**. (Project 9301900)
Action 5. **Rear hatchery juveniles at Oak Springs Hatchery.** (Project 9301900)
Action 6. **Release acclimated hatchery smolts into the Hood River subbasin.** (Project 8805303)
Action 7. **Coordination.** (Project 8805304, 8805303, and 9301900)

Strategy g. Determine the amount and condition of habitat available to anadromous salmonids in the Hood River subbasin.

Action 1. **Describe anadromous salmonid habitat.** (Projects 8805303 and 8805304)
Action 2. **Evaluate subbasin carrying capacity.** (Project 8805303)

Strategy h. Restore and recover habitat lost as a consequence of man's activities in the Hood River subbasin.

Action 1. **Describe habitat constraints.** (Projects 9802100 and 9145)
Action 2. **Identify habitat improvement projects.** (Projects 9802100 and 8805303)
Action 3. **Plan and develop projects.** (Project 9802100)
Action 4. **Implement habitat improvement projects** (Project 9802100)
Action 5. **Monitor and evaluate habitat improvement projects.** (Projects 9802100 and 8805303)
Action 6. **Coordination**. (Projects 8805304, 9802100, and 8805303)

Strategy i. Achieve a 95% compliance rate with statutes regulating the harvest of spring chinook salmon in the Hood River subbasin.

Action 1. **Using the Cooperative enforcement Plan (CEP), identify priorities.**
Action 2. **Provide patrols to address the priorities.**
Action 3. **Develop and implement Action Plans**
Action 4. **Detect and investigate environmental crimes**
Action 5. **Monitor and evaluate the success with a compliance index.**

Strategy j. Reduce the incidence of vandalism on structures and equipment used to implement BPA funded projects and programs.

Action 1. **Provide surveillance for research equipment.**
Action 2. **Provide surveillance for hatchery facilities.**
Action 3. **Provide surveillance for acclimation facilities**.
Action 4. **Monitor and evaluate the success with a compliance index.**

Objective 4. Achieve an escapement goal of 1,500 wild adult winter steelhead to the mouth of Fifteenmile Creek and a spawner escapement goal of 900 adult winter steelhead to the Fifteenmile Creek subbasin.

Strategy a. Restore and recover habitat lost as a consequence of man's activities in the Fifteenmile Creek subbasin.

Action 1. **Repair, maintenance, and inspection of riparian protection fences.** (Project 9304000)
Action 2. **Monitor stream temperatures.** (Project 9304000)
Action 3. **Maintain photopoints.** (Project 9304000)
Action 4. **Coordination.** (Project 9304000)

Strategy b. Determine abundance and life history patterns of anadromous and resident fishes in the Fifteenmile Creek subbasin.

Action 1. **Monitor smolt production.** (Project 9304001)
Action 2. **Monitor selected life history patterns**. (Project 9304001)
Action 3. **Monitor selected morphometric and meristic characteristics**. (Project 9304001)

Strategy c. Reduce the incidence of vandalism on structures and equipment used to implement BPA funded projects and programs.

Action 1. **Provide surveillance for research equipment.**
Action 2. **Monitor and evaluate the success with a compliance index.**

Objective 5. Achieve and sustain levels of habitat and species productivity in order to mitigate for all wildlife and wildlife habitat losses caused by the development and operation of the Columbia Basin hydro power system.

Strategy a. Identify potential protection and enhancement projects within the Hood River / Fifteenmile subbasin.
Strategy b. Implement wildlife or wildlife enhancement measures.
Strategy c. Monitor and evaluate wildlife habitat and wildlife species response to implemented enhancement activities within the Hood River / Fifteenmile Creek subbasins.

Congratulations!